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Microprocessor Interview Questions

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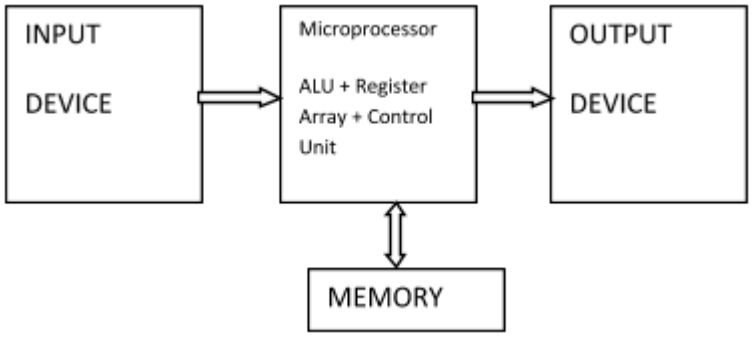
Q1. What is microprocessor?

A microprocessor is a processing unit of electronic devices which is including multiple transistors, **diodes**, **register**, etc electronics components. The microprocessor can operate arithmetic and logical operations as well as connect with other electronic devices for communication.

The Microprocessor made up of three terms:

- **ALU(Arithmetic Logical Unit):** This is used for arithmetic and logical performance which is received by memory or input data.
- **Register Array:** this is used for access and store the data in memory location temporarily using instruction and make the operation successful. Register array consists of Accumulator and B, C, D, E, H, L registers.
- **Control Unit:** Contol Unit controls the data and instruction flow in the system.

The basic diagram of the microprocessor is below.



Q2. What is microprocessor 8085?

The 8085 (**eight zero eight five**) microprocessor is an **8-bit** microprocessor. It is developed by **Intel using NMOS technology** and introduced in **1976, March**. The 8085 is the version of 8080 microprocessor were added to the interrupt and serial **input/output** features.

The 8085 microprocessor has an 8-bit data width and **16-bit** address width. This microprocessor has **60 pins**. This is used for many electronic devices like **oven**, **mobiles**, etc.

Q3. What is interrupt in microprocessor?

The Interrupt in the microprocessor is a signal which is generated by external peripherals. The external peripherals (**devices**) send the request to the microprocessor to execute their performance and stop the current task.

After working on the external task, the microprocessor completes the previous task again.

There are five interrupt in the microprocessor which is:- **RST 5.5, 6.5, 7.5, INTR**, **TRAP**.

Q4. What is 8086 microprocessor?

The 8086 microprocessor is a **16-bit** microprocessor. It is a developer by **Intel** and it is an advanced version of **8085**. This processor has a **16-bit data width**, a **20-bit address width**, and 1MB memory storage. It provides a powerful instruction set. Using 8086 microprocessor make some operation like multiplication and division and so on easily.

Q5. What is bus in microprocessor?

The Bus is common terms in the microprocessor which is mostly used for transmission. The system of the bus is to transmit the data/information and address in binary form.

The bus is a collection of wires that means **one wire per binary bit**. In microprocessor have three types of the bus which is following.

1. **Address Bus:** This is the unidirectional bus which is transmitting the address in binary form. The bus transmits data from the microprocessor to memory or input/output devices.
2. **Data Bus:** The data bus is bidirectional and carries the data and information. This data flow both direction which means from memory/devices to microprocessor and from microprocessor to memory or input/output devices
3. **Control Bus:** This is used to control the signal and other peripherals to flow data and transfer to the required memory location.

Q6. What is flag in microprocessor?

The Flag register is a Special Purpose Register which shows the status of the task. This is an **8-bit register** but the only **5bit** is used for the operation. The flag becomes **set** or **reset** after arithmetic and logical operation.

The flag register has 5 flags which are **Sign flag**, **Zero flag**, **Auxiliary carry flag**, **Parity flag**, and the **Carry flag**.

Q7. What is interfacing in microprocessor?

The microprocessor connects with many internal and external devices to process the task successfully. This procedure **called interfacing** in a microprocessor. In the microprocessor has **i/o** interfacing and **memory interfacing**. The connectivity of input devices (**keyboard**) and output devices (**screen**) with a microprocessor called **I/O** interfacing. The microprocessor accesses the memory to read the instruction code and store the data called memory interface.

Q8. What is register in microprocessor?

The register in the microprocessor is a temporary storage location in **CPU**. The register stores the data and addresses temporary for operation.

Q9. What is stack in microprocessor?

The stack is data structure in the RAM area which is worked last in first out. It is used for operation between two registers like **swap**, **add**, etc.

Q10. What is polling in microprocessor?

The polling method used for checking, the state of preparedness of external devices connection.

Q11. What is interfacing in microprocessor 8086

Interface refers to the path for communication between two components. Interfacing is of two types, memory interfacing, and I/O interfacing.

Memory Interfacing occurs when we need the microprocessor to access the memory for reading instruction codes and the data stored in the memory.

IO Interfacing indicates the various communication devices like the keyboard, mouse, printer, etc. When we need to interface the keyboard and other devices with the microprocessor by using latches and buffers. This type

of interfacing is known as I/O interfacing.

Q12. What is subroutine in microprocessor?

The subroutine in the microprocessor is a sequence of program instructions code that performs a particular task. This is packaged as a unit and used in a particular task when needed.

A subroutine is a unit which is used in multiple times in different location. The four types of subroutine have in the microprocessor.

1. Conditional Call instruction,
2. Unconditional call instruction,
3. Conditional return instruction,
4. Unconditional return instruction.

Q13. What is pipelining in microprocessor?

The pipelining is an advance microprocessor technique or procedure. This is worked when the second task work before the first task. This technique used simultaneously at many processing task stages. This is helped to improve task performance. There have 5 stages of working; **Instruction Fetch**, **Instruction Decode**, **Instruction Execute**, **Memory Access**, **write back Instruction**.

Q14. What is opcode and operand in microprocessor?

The Opcode is operation codes in the microprocessor which is done **addition**, **multiplication**, etc operation.

The operand contains the **data** or **memory** location in the register. If operation worked 1+2 then 1 and 2 are operands.

Q15. What is macro in microprocessor?

The macro in the **microprocessor** is a set of instruction which is group into a single unit. The macro works less than ten instruction set.

Q16. What is 16 bit microprocessor?

The 16-bit microprocessor has a 16-bit data width, 20-bit address width, and 1MB memory storage. This has a powerful instruction set to do many operations. **8086** is an example of a **16-bit** microprocessor.

Q17. What is 8 bit microprocessor?

The 8-bit microprocessor has an **8-bit data width**, a 16-bit address width. The **8085** is an example of an **8-bit** microprocessor.

Q18. What is assembler in microprocessor?

The assembler in microprocessor used to convert instruction code to machine code. The instruction code is understood for human and machine code is binary code which is understood to machine code.

Q19. What is data bus in microprocessor?

The data bus is bidirectional and carries the data and information. This data flow both direction which means from **memory/devices** to microprocessor and from microprocessor to memory or input/output devices. The data bus either **8bit** or **16 bit**.

Q20. What is memory mapping in microprocessor?

The memory mapping is used to transfer the logical address space into physical memory but sometimes physical memory is a **smaller size**. The microprocessor can access external memory. The memory mapping used for increased access to physical memory.

Q21. What is mnemonics in microprocessor?

The mnemonic in the microprocessor is **acronym/abbreviation**, for operation. It is used mnemonics in instruction code to make easy and suitable coding. The mnemonics are **R** used for the **register**, **A** for the **accumulator**, **z** for **zero flags**, **add** for **addition**, etc.

Q22. What is embedded microprocessor?

An embedded microprocessor is a **computer microchip** used inside many devices and electronics types of equipment. It is provides added functionality like operations and communication with the internet and other devices. It is an integrated circuit working with low power in electrical and electronic appliances as well as real-time data devices.

Q23. What is adc in microprocessor?

The analog signal converted into a digital signal helping by the **ADC** in the microcontroller. It is an **8-bit** chip which has **eight-channel** for conversion. Analog data has binary converted into digital using logical operation.

Q24. What is ale in microprocessor?

The ALE is an acronym of **Address Enable Latch**. If pulse goes high i.e. **ALE=1**, it means address bus enable and pulse goes low i.e. **ALE=0**, it means data bus enable. The ALE controls the signal when the pulse goes high because the new task started.

Q25. What is buffer in microprocessor?

If data want to move one place to another place then data stored temporarily in the buffer. **The address** and **data buffer** has bidirectional data transfer. If the buffer has the least significant address then it worked unidirectional data buffer. Without loose data, the buffer can transfer data from electronic devices to microprocessors and vice versa.

Q26. What is clock speed in microprocessor?

The rate of completing the process cycle in the microprocessor **called clock speed**. The clock speed measured by **megahertz** or **gigahertz** unit. 1.8 GHz processor has double clock speed than the **900MHZ** processor.

Q27. What is the function of LOADA mem and LOADB mem?

Loaders load the all code into memory and execute the process or Task. Loader calculates the instruction and data size and makes space for memory. It initializes the many registers to execute.

Q28. What is dual core microprocessor?

The dual-core is CPU with two cores or processors in an **integrated circuit**. Each processor has own cache and controller. The dual-processor has two separate modules and they linked together into a single chip.

Q29. How many pins in 8086 microprocessor have?

The 8086 has a 16-bit microprocessor which is 40 pins available. 16 data bus, 20 address bus, 2 ground pin, 1 reset pin, and 1 supply pin.

Q30. When was the first microprocessor introduced?

The first microprocessor is invented **in1971**. It is 4 bit Intel **4004** microprocessor.

Q31. When mvi is used in microprocessor?

If a task needs to take immediate input from the user then **MVI** instruction is used. This MVI needs 2 Machine cycles for the execution. The syntax of mvi is below.

MVI register_name, value. The value is in hexadecimal.

Example,

```
MVI A 24H.
```

Q32. What is Microprocessor logic?

The microprocessor called also **logic chips**. The microprocessor does arithmetics and logical operation. The **AND**, **OR**, **NOT**, **EXOR**, has their instruction in the microcontroller. The logical operations are done by a microprocessor using a **register** and **bus**.

Q33. What is difference between microprocessor and microcontroller?

Difference between microprocessor and microcontroller

The microprocessor - used in the computer system. **Memory** and **I/O** device connected externally. The microprocessor actually processes the data.

The microcontroller - used in the embedded system. The memory and I/O devices have inbuilt. The microcontroller determines the process of data.